PATENT ABSTRACTS OF JAPAN

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(54) PARTS INFORMATION CONTROL SYSTEM

(57)Abstract:

PURPOSE: To recognize the quality of parts and party number or the like without removing a part nor checking a service manual.

CONSTITUTION: A vehicle information controller 3 is provided with a memory 6 for storing the vehicle intrinsic information and the repair history information, and a system control unit having a function for reading out the vehicle intrinsic information and the repair history information from the memories 6-8 and for writing a new repair history information into the memory 6. A first and a second electronic control units 4, 5 are provided with memories 7, 8 for storing the vehicle intrinsic information and the repair history imformation. A cabin- outside terminal device 2 is provided with a function for commanding the vehicle information controller 3 to read out the vehicle intrinsic information and the repair history information from the memories 6-8 and to write the new repair history information to the memories 6-8 and for displaying the vehicle intrinsic information and the repair history information read out from the memories 6-8 in a display unit 13.
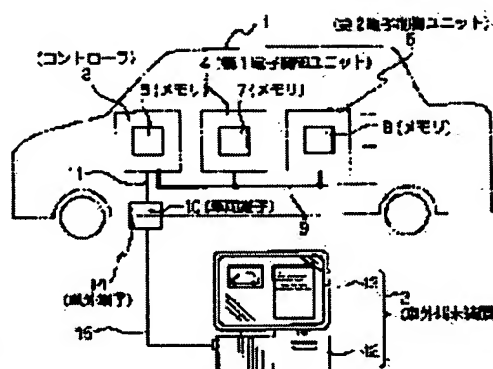
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CLAIMS

[Claim(s)]
[Claim 1] The part intelligent manufacturing system program equipped with the external terminal unit
connected to transportation meanses characterized by providing the following, such as vehicles which
have two or more control units which control an engine etc., removable. It has a storage means to have
the unused storage region each aforementioned control unit remembers beforehand the peculiar
information which shows the quality of the material, the part number, etc. of the various parts carried in
the aforementioned transportation means to be, respectively. It has the control means which have the
information retrieval function to search the peculiar information to which at least one control unit
corresponds from each aforementioned storage means based on the input of information retrieval
instructions from the aforementioned external terminal unit among each aforementioned control unit.
The information retrieval instruction function in which the aforementioned external terminal unit orders
it reference of the peculiar information which corresponds to the aforementioned control means. The
information output function which outputs the peculiar information searched by the aforementioned
control means.
[Claim 2] The part intelligent manufacturing system program equipped with the external terminal unit
connected to transportation meanses characterized by providing the following, such as vehicles which
have two or more control units which control an engine etc., removable. It has a storage means to have
the unused storage region which memorizes suitably the repair history information which shows the
existence of repair and exchange of the unused storage region each aforementioned control unit
remembers beforehand the peculiar information which shows the quality of the material, the part
number, etc. of the various parts carried in the aforementioned transportation means to be, and the
various aforementioned parts etc., respectively. Among each aforementioned control unit, at least one
control unit Based on the input of the information retrieval function to search the peculiar information
which corresponds from each aforementioned storage means based on the input of information retrieval
instructions from the aforementioned external terminal unit, and repair history information, and the
information write-in instructions from the aforementioned external terminal unit, an unused storage
region is searched from each aforementioned storage means. The information retrieval instruction
function which orders it reference of the peculiar information and repair history information that have
the control means which have the information write-in function which writes in new repair history
information, and the aforementioned external terminal unit corresponds to the aforementioned control
means. The information write-in instruction function which orders it the writing of the new repair
history information on the unused storage region which corresponds to the aforementioned control
means. The information output function which outputs the peculiar information searched by the
aforementioned control means and repair history information.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] this invention relates to a part intelligent manufacturing system program, and when enabling the check of the quality of the material, the part number, etc. of loading parts easily especially at the time of - demolition etc. at the time of - maintenance check at the time of the assembly of vehicles, a motor bicycle, an outboard motor, etc., it relates to a suitable part intelligent manufacturing system program.
[0002]
[Description of the Prior Art] The symbolized quality-of-the-material mark which shows the quality of the material is directly stamped on parts made of a resin, such as a bumper carried in the former, for example, vehicles. Moreover, in the vehicles assembly plant, the paper only for vehicles specifications which printed out the specifications (for example, a under carriage the kind of electronic control unit carried in a number and vehicles, the part number of the various parts carried in vehicles, etc.) of vehicles is used, and assembly operation is performed by discriminating the specification of vehicles.
[0003]
[Problem(s) to be Solved by the Invention] However, by the method of stamping a quality-of-the-material mark, for example on vehicles loading parts, such as a bumper, directly, since it was necessary to demount the part concerned from the body and to attach it again in case the quality of the material of parts is checked at service works etc., for example, there was a problem that the desorption of parts was troublesome. Moreover, in the reason that the stamp part of a quality-of-the-material mark was also decided for every parts, in order for there to be nothing, this problem also had the time and effort which looks for the quality-of-the-material mark stamped on parts. On the other hand, by the method of printing out the specification of the parts carried in vehicles in a vehicles assembly plant etc. on the paper only for vehicles specifications, since a disposal was carried out when the assembly of vehicles is completed, when this kind of paper only for vehicles specifications performed maintenance check, demolition, etc. of vehicles after vehicles shipment at service works, demolition works, etc., it had the problem for which another data, such as a service manual, are needed.
[0004]
[Objects of the Invention] this invention aims at offer of a part intelligent manufacturing system program whose check of the quality of the material, the part number, etc. of parts was enabled even if it has improved un-arranging [which the above-mentioned conventional example has], and did not demount parts especially or did not investigate a service manual etc.
[0005]
[Means for Solving the Problem] this invention is the part intelligent manufacturing system program equipped with the external terminal unit connected to transportation meanses, such as vehicles which have two or more control units which control an engine etc., removable. It has a storage means to have the unused storage region each aforementioned control unit remembers beforehand the peculiar information which shows the quality of the material, the part number, etc. of the various parts carried in

the aforementioned transportation means to be, respectively. It has the control means which have the information retrieval function to search the peculiar information to which at least one control unit corresponds from each aforementioned storage means based on the input of information retrieval instructions from the aforementioned external terminal unit among each aforementioned control unit. The aforementioned external terminal unit is considering as the composition possessing the information retrieval instruction function which orders it reference of the peculiar information which corresponds to the aforementioned control means, and the information output function which outputs the peculiar information searched by the aforementioned control means. Thereby, it is going to attain the purpose mentioned above.

[0006]

[Function] If it is ordered reference of the peculiar information which corresponds from each storage means to the control means of the control unit with which transportation meanses, such as vehicles, are equipped from the external terminal unit according to this invention, the control means of a control unit will search peculiar information from a storage means to correspond based on information retrieval instructions. Thereby, an external terminal unit outputs the peculiar information searched by control means. Therefore, since the quality of the material, the part number, etc. of the parts carried in transportation meanses, such as peculiar information, i.e., vehicles etc., even if it did not check the quality-of-the-material mark which demounted parts from transportation meanses, such as vehicles, like before, and was stamped or did not investigate a service manual can be checked immediately, it becomes possible to raise the workability at the time of the maintenance check in service works etc.

[0007]

[Example] Hereafter, the example which comes to apply the part intelligent manufacturing system program of this invention to vehicles is explained based on a drawing.

[0008] Drawing 1 is drawing showing the composition of equipment in the vehicles important section in this example, and the end of a vehicle outer edge. vehicles peculiar information memorized by the unused storage region of each memory of the vehicles information controller and electronic control unit carried in vehicles 1, such as a number, the quality of the material and the part number of the controlled-system parts of an electronic control unit, and the quality of the material, the part number of other vehicles loading parts, for example, shipment time and a under carriage -- -- repair history information By (reading repair / the quality of the material, the part number, etc. of the exchanged parts) with equipment 2 in the end of a vehicle outer edge, the discernment judging of the state of vehicles loading parts, the repair history judging after vehicles plant shipment, etc. are performed.

[0009] Moreover, in this example, it can use now for the next maintenance check in vehicles 1 etc. by writing the repair history information (quality of the material, part number, etc. of the parts fixed / exchanged) accompanying the maintenance check in service works etc. with equipment 2 in the end of a vehicle outer edge in each memory of the vehicles information controller and electronic control unit of vehicles 1.

[0010] if the composition of equipment is explained in full detail in a vehicles important section and the end of a vehicle outer edge -- the 2nd electronic control unit, for [the vehicles information controller 3 4, for example, the 1st electronic control unit for engine control, for example, for automatic-transmission control] in the predetermined part inside vehicles 1, 5 ... etc. is equipped the vehicles information controller 3 -- the 1st and the 2nd electronic control unit 4 and 5 -- it had the system-control section 16 (refer to drawing 2) and the memory 6 grade which carry out generalization control of ..., and the 1st electronic control unit 4 was equipped with the control section (illustration abbreviation) and memory 7 grade which control an engine etc., and the 2nd electronic control unit 5 is equipped with the control section (illustration abbreviation) and memory 8 grade which control an automatic transmission etc.

[0011] In this example, it is unnecessary to memorize vehicles peculiar information and repair history information using the unused storage region of each memory 6, 7, and 8 with which the vehicles information controller 3, the 1st electronic control unit 4, and the 2nd electronic control unit 5 are equipped beforehand, and to extend the memory of exclusive use separately.

[0012] In the unused storage region (storage region 6B) of the memory 6 of the vehicles information

controller 3 While vehicles peculiar information (for example, shipment time, a under carriage a number, the 1st, the 2nd electronic control unit 4 and 5 quality of the material, part number, etc. of vehicles loading parts other than the controlled-system parts of ...) is beforehand memorized at the time of the assembly of a vehicles plant, or shipment Repair history information (quality of the material, part number, etc. of the parts fixed / exchanged) uses equipment 2 after vehicles plant shipment at service works etc. in the end of a vehicle outer edge, and is memorized.

[0013] moreover, to the unused storage region of the memory 7 of the 1st electronic control unit 4, and the memory 8 of the 2nd electronic control unit 5 While vehicles peculiar information (quality of the material, part number, etc. of the controlled-system parts of the electronic control unit concerned) is beforehand memorized respectively at the time of the assembly of a vehicles plant, or shipment Repair history information (quality of the material, part number, etc. of the parts fixed / exchanged) uses equipment 2 after vehicles plant shipment at service works etc. in the end of a vehicle outer edge, and is memorized respectively.

[0014] the vehicles information controller 3 with which the interior of vehicles 1 is equipped, the 1st electronic control unit 4, and the 2nd electronic control unit 5 ... is electrically connected through the in-the-car cable 9, and the vehicles terminal 10 arranged in the predetermined part of vehicles 1 is further connected to the vehicles information controller 3 electrically through the in-the-car cable 11

[0015] On the other hand, equipment 2 is equipped with the main part 12 of equipment and display 13 which have a control section, a keyboard, etc., and is constituted in the end of a vehicle outer edge it is installed in service works (or demolition works) etc., and the vehicle outer edge child 14 is electrically connected to the main part 12 of equipment through the cable 15 outside a vehicle. They are the vehicles information controller 3 of vehicles 1, the 1st electronic control unit 4, and the 2nd electronic control unit 5 by equipment 2 in the end of a vehicle outer edge... When writing repair history information in the case where the vehicles peculiar information and repair history information which are memorized by each memory 6-8 are read, or each memory 6-8, the vehicle outer edge child 14 and the vehicles terminal 10 are connected.

[0016] Next, if the internal configuration of the vehicles information controller 3 is explained based on drawing 2 , the vehicles information controller 3 has composition equipped with the system-control section 16, the memory 6 which has storage region 6A and storage region 6B, the communications control section 17 (IC with communication facility), the transmitting-vehicle outside section 18, the receive section 19 outside a vehicle, the in-the-car transmitting section 20, the in-the-car receive section 21, and a timer 22.

[0017] The main control section 16 of the vehicles information controller 3 Communication of ... and information is performed. the in-the-car cable 9, the in-the-car transmitting section 20, the in-the-car receive section 21, and the communications control section 17 -- minding -- the 1st electronic control unit 4 and the 2nd electronic control unit 5 -- Communication of equipment 2 and information is performed in the end of a vehicle outer edge through the cable 15 outside a vehicle, the vehicle outer edge child 14, the vehicles terminal 10, the in-the-car cable 11, the transmitting-vehicle outside section 18, the receive section 19 outside a vehicle, and the communications control section 17. field 6A in which memory 6 stored the system program, the quality of the material and the part number of vehicles loading parts, and a under carriage -- it is classified into field 6B which memorized information, such as a number and shipment time A timer 22 measures time.

[0018] The system-control section 16 of the vehicles information controller 3 If the signal which requests read-out/writing of vehicles peculiar information or repair history information in the end of a vehicle outer edge through the cable 15 outside equipment 2 empty vehicle, the vehicle outer edge child 14, the vehicles terminal 10, the in-the-car cable 11, the receive section 19 outside a vehicle, and the communications control section 17 is transmitted The contents data of a request and the time data measured with the timer 22 are memorized to field 6B of memory 6.

[0019] Moreover, the system-control section 16 of the vehicles information controller 3 The contents of a request of equipment 2 are embraced in the end of a vehicle outer edge. The vehicles peculiar information or repair history information memorized by the memory 6 of the vehicles information

controller 3, the memory 7 of the 2nd electronic control unit 4, and the memory 8 of the 2nd electronic control unit 5 The communications control section 17, the transmitting-vehicle outside section 18, the in-the-car cable 11, the vehicles terminal 10, the vehicle outer edge child 14, It transmits to equipment 2 through the cable 15 outside a vehicle in the end of a vehicle outer edge.

[0020] Next, an operation of the constituted this example is explained based on drawing 3 like the above.

[0021] For example, if the operator of service works connects the vehicle outer edge child 14 of equipment 2, and the vehicles terminal 10 of vehicles 1 in the end of a vehicle outer edge it has installed in the service works concerned to perform maintenance check of vehicles 1 etc. (Step S1), informational communication will be possible between equipment 2 in the vehicles information controller 3 of vehicles 1, and the end of a vehicle outer edge.

[0022] Next, an input of the password beforehand set up from the keyboard of the main part 12 of equipment of equipment 2 in the end of a vehicle outer edge of the operator of service works transmits the signal corresponding to the password to the system-control section 16 through the receive section 19 outside a vehicle of the cable 15 outside a vehicle, the vehicle outer edge child 14, the vehicles terminal 10, the in-the-car cable 11, and the vehicles information controller 3, and the communications control section 17 (Step S2).

[0023] On the other hand (step S4), the system-control section 16 of the vehicles information controller 3 does not perform communication with equipment 2 in the end of a vehicle outer edge, when [that is not regular as for a password] memorizing the time measured with the timer 22 to field 6B of memory 6, while it judges whether it is what has the transmitted regular password (Step S3), and starting communication with equipment 2 in the end of a vehicle outer edge, when a password is regular (Step S5).

[0024] Next, an input of the command transmitted to keyboard empty-vehicle both the information controller 3 of the main part 12 of equipment of equipment 2 in the end of a vehicle outer edge of the operator of service works transmits a command to the system-control section 16 through the receive section 19 outside a vehicle of the cable 15 outside a vehicle, the vehicle outer edge child 14, the vehicles terminal 10, the in-the-car cable 11, and the vehicles information controller 3, and the communications control section 17 (Step S6).

[0025] The system-control section 16 of the vehicles information controller 3 If a command is received from equipment 2 in the end of a vehicle outer edge, read-out of the vehicles peculiar information (for example, shipment time, a under carriage a number, the quality of the material, the part number of other vehicles loading parts, etc.) from the memory which corresponds among the memory 6-8 of the vehicles information controller 3 based on the command concerned will be performed. Or read-out/writing of repair history information (quality of the material, part number, etc. of the parts fixed / exchanged) to the corresponding memory are performed.

[0026] The system-control section 16 of the vehicles information controller 3 transmits the signal based on an execution result to equipment 2 in the end of a vehicle outer edge through the communications control section 17, the transmitting-vehicle outside section 18, the in-the-car cable 11, the vehicles terminal 10, the vehicle outer edge child 14, and the cable 15 outside a vehicle, after execution of read-out/writing based on the above-mentioned command is completed (Step S7).

[0027] Equipment 2 displays a judgment result on a display 13 in the end of a vehicle outer edge while performing the discernment judging of whether vehicles 1 consist of normal parts based on the vehicles peculiar information received from the vehicles information controller 3 of vehicles 1, the repair history judging of the vehicles [it is based on the received repair history information, and] 1 after factory shipments, etc. (Step S8).

[0028] Next, it judges whether information transmission to equipment 2 ended equipment 2 in the end of a vehicle outer edge by the vehicles information controller 3 of vehicles 1 in the end of a vehicle outer edge (step S9). When having not ended, while repeating the processing after the above-mentioned step S6 When it ends, a terminate signal is transmitted to the system-control section 16 through the receive section 19 outside a vehicle of the cable 15 outside a vehicle, the vehicle outer edge child 14, the

vehicles terminal 10, the in-the-car cable 11, and the vehicles information controller 3, and the communications control section 17 (Step S10).

[0029] The system-control section 16 of the vehicles information controller 3 of vehicles 1 will memorize the end time measured with the timer 22 to field 6B of memory 6, if a terminate signal is received from equipment 2 in the end of a vehicle outer edge (Step S11). The above is the flow of the control action of equipment 2 in the vehicles information controller 3 of the vehicles 1 in this example, and the end of a vehicle outer edge.

[0030] As mentioned above, according to this example The unused storage region of ... is used. the vehicles information controller 3 of vehicles 1, the 1st, and the 2nd electronic control unit 4 and 5 -- each memory 6, 8, and 9 with which ... is equipped beforehand -- while memorizing beforehand vehicles peculiar information at the time of factory shipments, such as a number, the quality of the material and the part number of the controlled-system parts of an electronic control unit, and the quality of the material, the part number of other vehicles loading parts, for example, shipment time and a under carriage -- Only by connecting the vehicle outer edge child 14 of equipment 2 with the vehicles terminal 10 of vehicles 1 in the end of a vehicle outer edge it has installed in service works etc., and inputting a password, in order to memorize suitably the repair history information at the time of maintenance check (quality of the material, part number, etc. of the parts fixed / exchanged) While being able to check immediately the vehicles peculiar information on vehicles 1, and repair history information, the discernment judging of whether vehicles 1 consist of normal parts, a repair history judging, etc. can also be performed.

[0031] therefore -- even if it does not check the quality-of-the-material mark which demounted parts from vehicles like before and was stamped or does not investigate a service manual -- the under carriage of vehicles -- the 1st of a number, the quality of the material of vehicles loading parts and the part number, and vehicles loading, and the 2nd electronic control unit 4 and 5 -- since it can check immediately whether ... is as specification, it becomes possible to raise the workability at the time of the maintenance check in service works etc. Moreover, since the repair history accompanying the maintenance check after the factory shipments of vehicles is also memorizable, it becomes possible to perform maintenance check of vehicles exactly. Furthermore, since vehicles peculiar information and repair history information memorize using the unused storage region of memory 6-8, they do not have the need of preparing separately the exclusive memory which memorizes each [these] information, and there is [an advantage that the existing memory can be used effectively].

[0032] in this case -- the above-mentioned example -- the vehicles information controller 3, and the 1st and the 2nd electronic control unit 4 and 5 -- although the in-the-car cable 9 which connects ..., and the in-the-car cable 11 which connects the vehicles information controller 3 and the vehicles terminal 10 were considered as the composition which wires separately, as it is not limited to this, for example, is shown in drawing 4 , it is also possible for the in-the-car cables 9 and 10 to be put in block as one in-the-car cable 23 in this case, the end of a vehicle outer edge -- equipment 2 -- receiving -- the vehicles information controller 3, and the 1st and the 2nd electronic control unit 4 and 5 -- since ... becomes a pair etc. -- the end of a vehicle outer edge -- the vehicles information controller 3 from equipment 2, the 1st, and the 2nd electronic control unit 4 and 5 -- communication of any of ... can be attained and they can also simplify wiring of an in-the-car cable further

[0033] Moreover, although the case where the part intelligent manufacturing system program of this invention was applied to vehicles was raised in the above-mentioned example to the example, it is also possible for it not to be limited to this, for example, to apply to a motor bicycle, an outboard motor, etc. Moreover, although the case where equipment 2 was installed in service works in the end of a vehicle outer edge was raised in the above-mentioned example to the example, it is also possible for it not to be limited to this, for example, to install in arbitrary places, such as demolition works.

[0034]

[Effect of the Invention] As explained above, according to the part intelligent manufacturing system program of this invention Each control unit peculiar information The unused storage region memorized beforehand The storage means which it has Since it had, respectively, it had the control means which

have the information retrieval function in which at least one control unit searches peculiar information among each control unit and it has the information output function which outputs the peculiar information which an external terminal unit orders reference of peculiar information, and which was searched [were searched and it information-retrieval-instructions-functioned], Become possible to check immediately the quality of the material, the part number, etc. of the parts carried in transportation meanses, such as peculiar information, i.e., vehicles etc., even if it did not check the quality-of-the-material mark which demounted parts from transportation meanses, such as vehicles, like before, and was stamped or did not investigate a service manual, and it follows. For example, since it became possible to raise the workability at the time of maintenance check of transportation meanses, such as vehicles in service works etc., and peculiar information is further memorized using the unused storage region of each storage means, The outstanding effect that there is no need of establishing separately the storage means of the exclusive use which memorizes each [these] information, therefore the existing storage means can be used effectively can be done so.

[0035] Moreover, it sets to the part intelligent manufacturing system program of this invention. Each control unit peculiar information The information retrieval function and unused storage region with which it has a storage means to have the unused storage region which memorizes suitably the unused storage region and repair history information which are memorized beforehand, respectively, and at least one control unit searches peculiar information and repair history information among each control unit are searched. New repair history information The information write-in function to write in When it has the control means which it has and has the information output function which outputs the peculiar information which orders it the writing of the information retrieval instruction function in which an external terminal unit orders it reference of peculiar information and repair history information, and the new repair history information on an unused storage region, and which was searched [were searched and it instructions/ information write-in /-functioned], and repair history information Since read-out and the writing of a repair history accompanying maintenance check after the factory shipments of transportation meanses, such as vehicles, are attained, it is effective in becoming possible to perform maintenance check of transportation meanses, such as vehicles, smoothly.

[Translation done.]

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TECHNICAL FIELD

[Industrial Application] this invention relates to a part intelligent manufacturing system program, and when enabling the check of the quality of the material, the part number, etc. of loading parts easily especially at the time of - demolition etc. at the time of - maintenance check at the time of the assembly of vehicles, a motor bicycle, an outboard motor, etc., it relates to a suitable part intelligent manufacturing system program.

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PRIOR ART

[Description of the Prior Art] The symbolized quality-of-the-material mark which shows the quality of the material is directly stamped on parts made of a resin, such as a bumper carried in the former, for example, vehicles. Moreover, in the vehicles assembly plant, the paper only for vehicles specifications which printed out the specifications (for example, a under carriage the kind of electronic control unit carried in a number and vehicles, the part number of the various parts carried in vehicles, etc.) of vehicles is used, and assembly operation is performed by discriminating the specification of vehicles.

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EFFECT OF THE INVENTION

[Effect of the Invention] Since it had a storage means have the unused storage region each control unit remembers peculiar information to be beforehand according to the part intelligent manufacturing system program of this invention as explained above, respectively, it had the control means which have the information-retrieval function to in_which at least one control unit searches peculiar information among each control unit and it has the information output function which outputs the peculiar information which an external terminal unit orders reference of peculiar information, and which was searched
[searched and it information-retrieval-instructions-functioned]. Become possible to check immediately the quality of the material, the part number, etc. of the parts carried in transportation meanses, such as peculiar information, i.e., vehicles etc., even if it did not check the quality-of-the-material mark which demounted parts from transportation meanses, such as vehicles, like before, and was stamped or did not investigate a service manual, and it follows. For example, since it became possible to raise the workability at the time of maintenance check of transportation meanses, such as vehicles in service works etc., and peculiar information is further memorized using the unused storage region of each storage means, The outstanding effect that there is no need of establishing separately the storage means of the exclusive use which memorizes each [these] information, therefore the existing storage means can be used effectively can be done so.
[0035] Moreover, it sets to the part intelligent manufacturing system program of this invention. Each control unit peculiar information The information retrieval function and unused storage region with which it has a storage means to have the unused storage region which memorizes suitably the unused storage region and repair history information which are memorized beforehand, respectively, and at least one control unit searches peculiar information and repair history information among each control unit are searched. New repair history information The information write-in function to write in When it has the control means which it has and has the information output function which outputs the peculiar information which orders it the writing of the information retrieval instruction function in which an external terminal unit orders it reference of peculiar information and repair history information, and the new repair history information on an unused storage region, and which was searched [were searched and it instructions/ information write-in /-functioned], and repair history information Since read-out and the writing of a repair history accompanying maintenance check after the factory shipments of transportation meanses, such as vehicles, are attained. It is effective in becoming possible to perform maintenance check of transportation meanses, such as vehicles, smoothly.

[Translation done.]

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, by the method of stamping a quality-of-the-material mark, for example on vehicles loading parts, such as a bumper, directly, since it was necessary to demount the part concerned from the body and to attach it again in case the quality of the material of parts is checked at service works etc., for example, there was a problem that the desorption of parts was troublesome. Moreover, in the reason that the stamp part of a quality-of-the-material mark was also decided for every parts, in order for there to be nothing, this problem also had the time and effort which looks for the quality-of-the-material mark stamped on parts. On the other hand, by the method of printing out the specification of the parts carried in vehicles in a vehicles assembly plant etc. on the paper only for vehicles specifications, since a disposal was carried out when the assembly of vehicles is completed, when this kind of paper only for vehicles specifications performed maintenance check, demolition, etc. of vehicles after vehicles shipment at service works, demolition works, etc., it had the problem for which another data, such as a service manual, are needed.
[0004]
[Objects of the Invention] this invention aims at offer of a part intelligent manufacturing system program whose check of the quality of the material, the part number, etc. of parts was enabled even if it has improved un-arranging [which the above-mentioned conventional example has], and did not demount parts especially or did not investigate a service manual etc.

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MEANS

[Means for Solving the Problem] this invention is the part intelligent manufacturing system program equipped with the external terminal unit connected to transportation meanses, such as vehicles which have two or more control units which control an engine etc., removable. It has a storage means to have the unused storage region each aforementioned control unit remembers beforehand the peculiar information which shows the quality of the material, the part number, etc. of the various parts carried in the aforementioned transportation means to be, respectively. It has the control means which have the information retrieval function to search the peculiar information to which at least one control unit corresponds from each aforementioned storage means based on the input of information retrieval instructions from the aforementioned external terminal unit among each aforementioned control unit. The aforementioned external terminal unit is considering as the composition possessing the information retrieval instruction function which orders it reference of the peculiar information which corresponds to the aforementioned control means, and the information output function which outputs the peculiar information searched by the aforementioned control means. Thereby, it is going to attain the purpose mentioned above.

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OPERATION

[Function] If it is ordered reference of the peculiar information which corresponds from each storage means to the control means of the control unit with which transportation meanses, such as vehicles, are equipped from the external terminal unit according to this invention, the control means of a control unit will search peculiar information from a storage means to correspond based on information retrieval instructions. Thereby, an external terminal unit outputs the peculiar information searched by control means. Therefore, since the quality of the material, the part number, etc. of the parts carried in transportation meanses, such as peculiar information, i.e., vehicles etc., even if it did not check the quality-of-the-material mark which demounted parts from transportation meanses, such as vehicles, like before, and was stamped or did not investigate a service manual can be checked immediately, it becomes possible to raise the workability at the time of the maintenance check in service works etc.

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EXAMPLE

[Example] Hereafter, the example which comes to apply the part intelligent manufacturing system program of this invention to vehicles is explained based on a drawing.
[0008] Drawing 1 is drawing showing the composition of equipment in the vehicles important section in this example, and the end of a vehicle outer edge. vehicles peculiar information memorized by the unused storage region of each memory of the vehicles information controller and electronic control unit carried in vehicles 1, such as a number, the quality of the material and the part number of the controlled-system parts of an electronic control unit, and the quality of the material, the part number of other vehicles loading parts, for example, shipment time and a under carriage -- -- repair history information By (reading repair / the quality of the material, the part number, etc. of the exchanged parts) with equipment 2 in the end of a vehicle outer edge, the discernment judging of the state of vehicles loading parts, the repair history judging after vehicles plant shipment, etc. are performed.
[0009] Moreover, in this example, it can use now for the next maintenance check in vehicles 1 etc. by writing the repair history information (quality of the material, part number, etc. of the parts fixed / exchanged) accompanying the maintenance check in service works etc. with equipment 2 in the end of a vehicle outer edge in each memory of the vehicles information controller and electronic control unit of vehicles 1.
[0010] if the composition of equipment is explained in full detail in a vehicles important section and the end of a vehicle outer edge -- the 2nd electronic control unit, for [the vehicles information controller 3 4, for example, the 1st electronic control unit for engine control, for example, for automatic-transmission control] in the predetermined part inside vehicles 1, 5 ... etc. is equipped the vehicles information controller 3 -- the 1st and the 2nd electronic control unit 4 and 5 -- it had the system-control section 16 (refer to drawing 2) and the memory 6 grade which carry out generalization control of ..., and the 1st electronic control unit 4 was equipped with the control section (illustration abbreviation) and memory 7 grade which control an engine etc., and the 2nd electronic control unit 5 is equipped with the control section (illustration abbreviation) and memory 8 grade which control an automatic transmission etc.
[0011] In this example, it is unnecessary to memorize vehicles peculiar information and repair history information using the unused storage region of each memory 6, 7, and 8 with which the vehicles information controller 3, the 1st electronic control unit 4, and the 2nd electronic control unit 5 are equipped beforehand, and to extend the memory of exclusive use separately.
[0012] In the unused storage region (storage region 6B) of the memory 6 of the vehicles information controller 3 While vehicles peculiar information (for example, shipment time, a under carriage a number, the 1st, the 2nd electronic control unit 4 and 5 quality of the material, part number, etc. of vehicles loading parts other than the controlled-system parts of ...) is beforehand memorized at the time of the assembly of a vehicles plant, or shipment Repair history information (quality of the material, part number, etc. of the parts fixed / exchanged) uses equipment 2 after vehicles plant shipment at service works etc. in the end of a vehicle outer edge, and is memorized.
[0013] moreover, to the unused storage region of the memory 7 of the 1st electronic control unit 4, and the memory 8 of the 2nd electronic control unit 5 While vehicles peculiar information (quality of the

material, part number, etc. of the controlled-system parts of the electronic control unit concerned) is beforehand memorized respectively at the time of the assembly of a vehicles plant, or shipment Repair history information (quality of the material, part number, etc. of the parts fixed / exchanged) uses equipment 2 after vehicles plant shipment at service works etc. in the end of a vehicle outer edge, and is memorized respectively.

[0014] the vehicles information controller 3 with which the interior of vehicles 1 is equipped, the 1st electronic control unit 4, and the 2nd electronic control unit 5 ... is electrically connected through the in-the-car cable 9, and the vehicles terminal 10 arranged in the predetermined part of vehicles 1 is further .connected to the vehicles information controller 3 electrically through the in-the-car cable 11

[0015] On the other hand, equipment 2 is equipped with the main part 12 of equipment and display 13 which have a control section, a keyboard, etc., and is constituted in the end of a vehicle outer edge it is installed in service works (or demolition works) etc., and the vehicle outer edge child 14 is electrically connected to the main part 12 of equipment through the cable 15 outside a vehicle. They are the vehicles information controller 3 of vehicles 1, the 1st electronic control unit 4, and the 2nd electronic control unit 5 by equipment 2 in the end of a vehicle outer edge... When writing repair history information in the case where the vehicles peculiar information and repair history information which are memorized by each memory 6-8 are read, or each memory 6-8, the vehicle outer edge child 14 and the vehicles terminal 10 are connected.

[0016] Next, if the internal configuration of the vehicles information controller 3 is explained based on drawing 2 , the vehicles information controller 3 has composition equipped with the system-control section 16, the memory 6 which has storage region 6A and storage region 6B, the communications control section 17 (IC with communication facility), the transmitting-vehicle outside section 18, the receive section 19 outside a vehicle, the in-the-car transmitting section 20, the in-the-car receive section 21, and a timer 22.

[0017] The main control section 16 of the vehicles information controller 3 Communication of ... and information is performed. the in-the-car cable 9, the in-the-car transmitting section 20, the in-the-car receive section 21, and the communications control section 17 -- minding -- the 1st electronic control unit 4 and the 2nd electronic control unit 5 -- Communication of equipment 2 and information is performed in the end of a vehicle outer edge through the cable 15 outside a vehicle, the vehicle outer edge child 14, the vehicles terminal 10, the in-the-car cable 11, the transmitting-vehicle outside section 18, the receive section 19 outside a vehicle, and the communications control section 17. field 6A in which memory 6 stored the system program, the quality of the material and the part number of vehicles loading parts, and a under carriage -- it is classified into field 6B which memorized information, such as a number and shipment time A timer 22 measures time.

[0018] The system-control section 16 of the vehicles information controller 3 If the signal which requests read-out/writing of vehicles peculiar information or repair history information in the end of a vehicle outer edge through the cable 15 outside equipment 2 empty vehicle, the vehicle outer edge child 14, the vehicles terminal 10, the in-the-car cable 11, the receive section 19 outside a vehicle, and the communications control section 17 is transmitted The contents data of a request and the time data measured with the timer 22 are memorized to field 6B of memory 6.

[0019] Moreover, the system-control section 16 of the vehicles information controller 3 The contents of a request of equipment 2 are embraced in the end of a vehicle outer edge. The vehicles peculiar information or repair history information memorized by the memory 6 of the vehicles information controller 3, the memory 7 of the 2nd electronic control unit 4, and the memory 8 of the 2nd electronic control unit 5 The communications control section 17, the transmitting-vehicle outside section 18, the in-the-car cable 11, the vehicles terminal 10, the vehicle outer edge child 14, It transmits to equipment 2 through the cable 15 outside a vehicle in the end of a vehicle outer edge.

[0020] Next, an operation of the constituted this example is explained based on drawing 3 like the above.

[0021] For example, if the operator of service works connects the vehicle outer edge child 14 of equipment 2, and the vehicles terminal 10 of vehicles 1 in the end of a vehicle outer edge it has installed

in the service works concerned to perform maintenance check of vehicles 1 etc. (Step S1), informational communication will be possible between equipment 2 in the vehicles information controller 3 of vehicles 1, and the end of a vehicle outer edge.

[0022] Next, an input of the password beforehand set up from the keyboard of the main part 12 of equipment of equipment 2 in the end of a vehicle outer edge of the operator of service works transmits the signal corresponding to the password to the system-control section 16 through the receive section 19 outside a vehicle of the cable 15 outside a vehicle, the vehicle outer edge child 14, the vehicles terminal 10, the in-the-car cable 11, and the vehicles information controller 3, and the communications control section 17 (Step S2).

[0023] The system-control section 16 of the vehicles information controller 3 When a password is regular, while it judges whether it is what has the transmitted regular password (Step S3), and starting communication with equipment 2 in the end of a vehicle outer edge On the other hand (Step S4), when [which is not regular as for a password] memorizing the time measured with the timer 22 to field 6B of memory 6, communication with equipment 2 is not performed in the end of a vehicle outer edge (Step S5).

[0024] Next, an input of the command transmitted to keyboard empty-vehicle both the information controller 3 of the main part 12 of equipment of equipment 2 in the end of a vehicle outer edge of the operator of service works transmits a command to the system-control section 16 through the receive section 19 outside a vehicle of the cable 15 outside a vehicle, the vehicle outer edge child 14, the vehicles terminal 10, the in-the-car cable 11, and the vehicles information controller 3, and the communications control section 17 (Step S6).

[0025] The system-control section 16 of the vehicles information controller 3 If a command is received from equipment 2 in the end of a vehicle outer edge, read-out of the vehicles peculiar information (for example, shipment time, a under carriage a number, the quality of the material, the part number of other vehicles loading parts, etc.) from the memory which corresponds among the memory 6-8 of the vehicles information controller 3 based on the command concerned will be performed. Or read-out/writing of repair history information (quality of the material, part number, etc. of the parts fixed / exchanged) to the corresponding memory are performed.

[0026] The system-control section 16 of the vehicles information controller 3 transmits the signal based on an execution result to equipment 2 in the end of a vehicle outer edge through the communications control section 17, the transmitting-vehicle outside section 18, the in-the-car cable 11, the vehicles terminal 10, the vehicle outer edge child 14, and the cable 15 outside a vehicle, after execution of read-out/writing based on the above-mentioned command is completed (Step S7).

[0027] Equipment 2 displays a judgment result on a display 13 in the end of a vehicle outer edge while performing the discernment judging of whether vehicles 1 consist of normal parts based on the vehicles peculiar information received from the vehicles information controller 3 of vehicles 1, the repair history judging of the vehicles [it is based on the received repair history information, and] 1 after factory shipments, etc. (Step S8).

[0028] Next, it judges whether information transmission to equipment 2 ended equipment 2 in the end of a vehicle outer edge by the vehicles information controller 3 of vehicles 1 in the end of a vehicle outer edge (step S9). When having not ended, while repeating the processing after the above-mentioned step S6 When it ends, a terminate signal is transmitted to the system-control section 16 through the receive section 19 outside a vehicle of the cable 15 outside a vehicle, the vehicle outer edge child 14, the vehicles terminal 10, the in-the-car cable 11, and the vehicles information controller 3, and the communications control section 17 (Step S10).

[0029] The system-control section 16 of the vehicles information controller 3 of vehicles 1 will memorize the end time measured with the timer 22 to field 6B of memory 6, if a terminate signal is received from equipment 2 in the end of a vehicle outer edge (Step S11). The above is the flow of the control action of equipment 2 in the vehicles information controller 3 of the vehicles 1 in this example, and the end of a vehicle outer edge.

[0030] As mentioned above, according to this example The unused storage region of ... is used. the

vehicles information controller 3 of vehicles 1, the 1st, and the 2nd electronic control unit 4 and 5 -- each memory 6, 8, and 9 with which ... is equipped beforehand -- while memorizing beforehand vehicles peculiar information at the time of factory shipments, such as a number, the quality of the material and the part number of the controlled-system parts of an electronic control unit, and the quality of the material, the part number of other vehicles loading parts, for example, shipment time and a under carriage -- Only by connecting the vehicle outer edge child 14 of equipment 2 with the vehicles terminal 10 of vehicles 1 in the end of a vehicle outer edge it has installed in service works etc., and inputting a password, in order to memorize suitably the repair history information at the time of maintenance check (quality of the material, part number, etc. of the parts fixed / exchanged) While being able to check immediately the vehicles peculiar information on vehicles 1, and repair history information, the discernment judging of whether vehicles 1 consist of normal parts, a repair history judging, etc. can also be performed.

[0031] therefore -- even if it does not check the quality-of-the-material mark which demounted parts from vehicles like before and was stamped or does not investigate a service manual -- the under carriage of vehicles -- the 1st of a number, the quality of the material of vehicles loading parts and the part number, and vehicles loading, and the 2nd electronic control unit 4 and 5 -- since it can check immediately whether ... is as specification, it becomes possible to raise the workability at the time of the maintenance check in service works etc. Moreover, since the repair history accompanying the maintenance check after the factory shipments of vehicles is also memorizable, it becomes possible to perform maintenance check of vehicles exactly. Furthermore, since vehicles peculiar information and repair history information memorize using the unused storage region of memory 6-8, they do not have the need of preparing separately the exclusive memory which memorizes each [these] information, and there is [an advantage that the existing memory can be used effectively].

[0032] in this case -- the above-mentioned example -- the vehicles information controller 3, and the 1st and the 2nd electronic control unit 4 and 5 -- although the in-the-car cable 9 which connects ..., and the in-the-car cable 11 which connects the vehicles information controller 3 and the vehicles terminal 10 were considered as the composition which wires separately, as it is not limited to this, for example, is shown in drawing 4 , it is also possible for the in-the-car cables 9 and 10 to be put in block as one in-the-car cable 23 in this case, the end of a vehicle outer edge -- equipment 2 -- receiving -- the vehicles information controller 3, and the 1st and the 2nd electronic control unit 4 and 5 -- since ... becomes a pair etc. -- the end of a vehicle outer edge -- the vehicles information controller 3 from equipment 2, the 1st, and the 2nd electronic control unit 4 and 5 -- communication of any of ... can be attained and they can also simplify wiring of an in-the-car cable further

[0033] Moreover, although the case where the part intelligent manufacturing system program of this invention was applied to vehicles was raised in the above-mentioned example to the example, it is also possible for it not to be limited to this, for example, to apply to a motor bicycle, an outboard motor, etc. Moreover, although the case where equipment 2 was installed in service works in the end of a vehicle outer edge was raised in the above-mentioned example to the example, it is also possible for it not to be limited to this, for example, to install in arbitrary places, such as demolition works.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the block diagram showing the composition of equipment in the vehicles important section in this example which applied this invention, and the end of a vehicle outer edge.
[Drawing 2] It is the block diagram showing the composition of the vehicles information controller in this example.
[Drawing 3] It is the flow chart showing read-out / write-in processing of the vehicles peculiar information and repair history information in this example.
[Drawing 4] It is the block diagram showing the composition of the vehicles important section by the modification.
[Description of Notations]
1 Vehicles
2 It is Equipment Vehicle Outer Edge End as an External Terminal Unit.
3 Vehicles Information Controller as a Control Unit
4 1st Electronic Control Unit as a Control Unit
5 2nd Electronic Control Unit as a Control Unit
6, 7, 8 Memory as a storage means
9 11 In-the-car cable
10 Vehicles Terminal
13 Display
14 Vehicle Outer Edge Child
15 Cable outside Vehicle
16 System-Control Section as Control Means

[Translation done.]
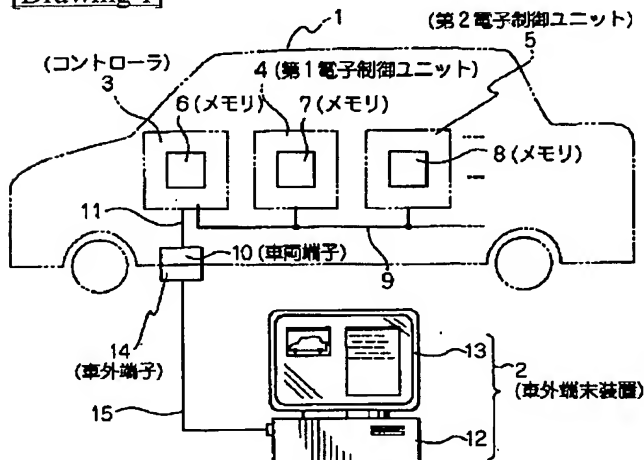
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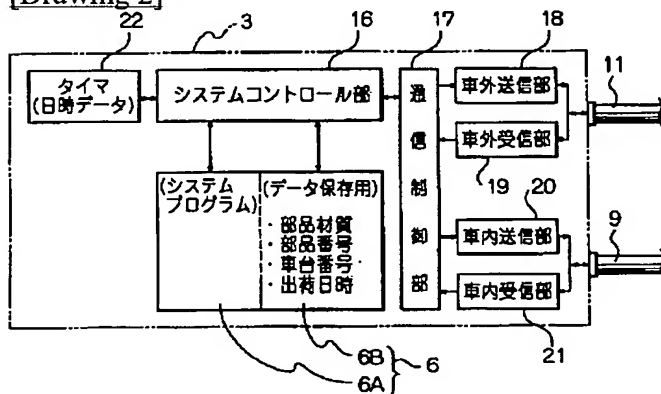damages caused by the use of this translation.

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DRAWINGS

[Drawing 1]

[Drawing 2]

[Drawing 4]
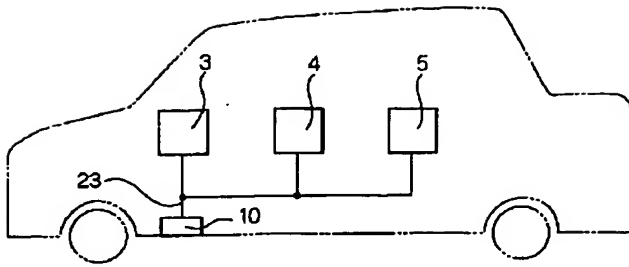
[Drawing 3]
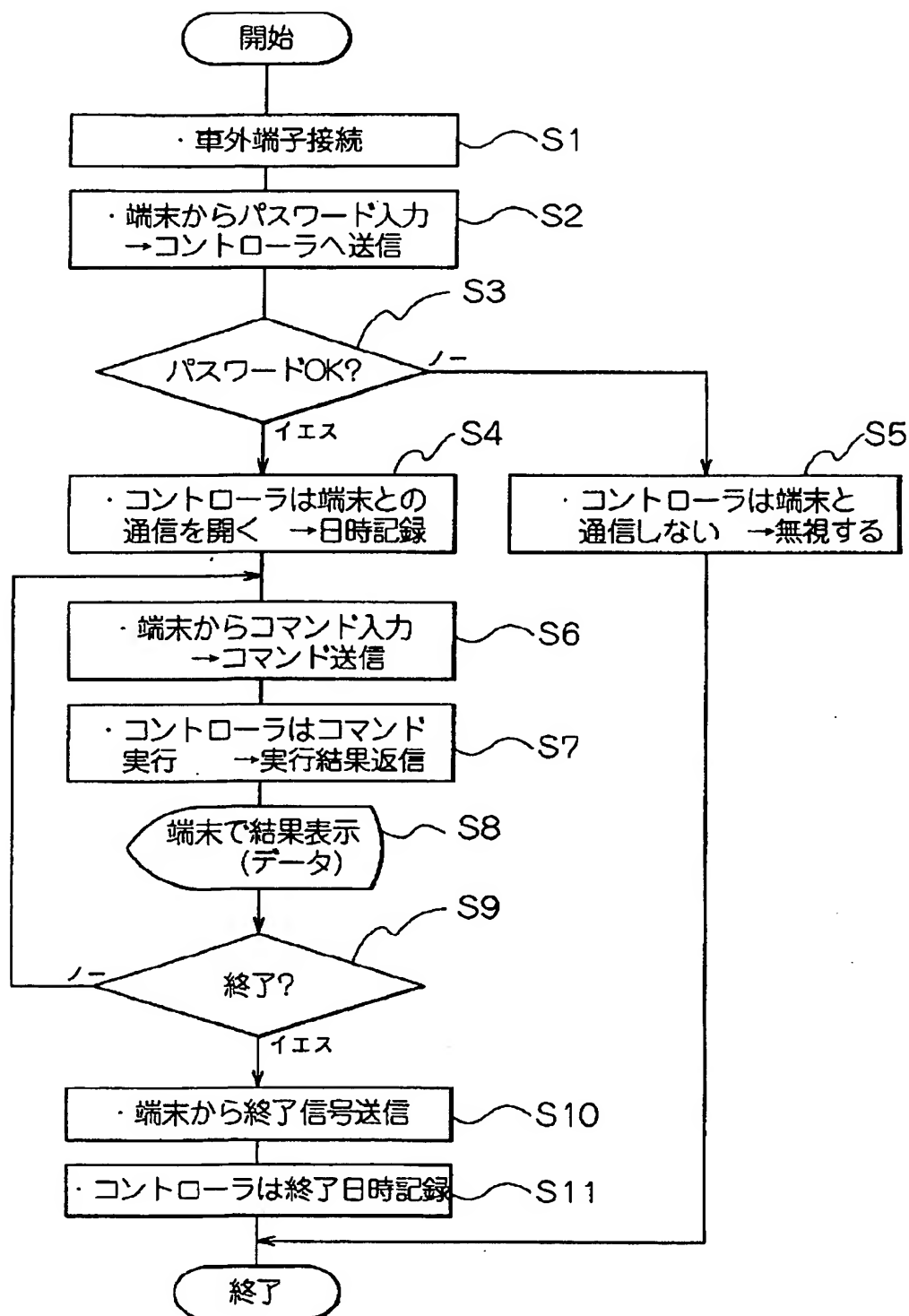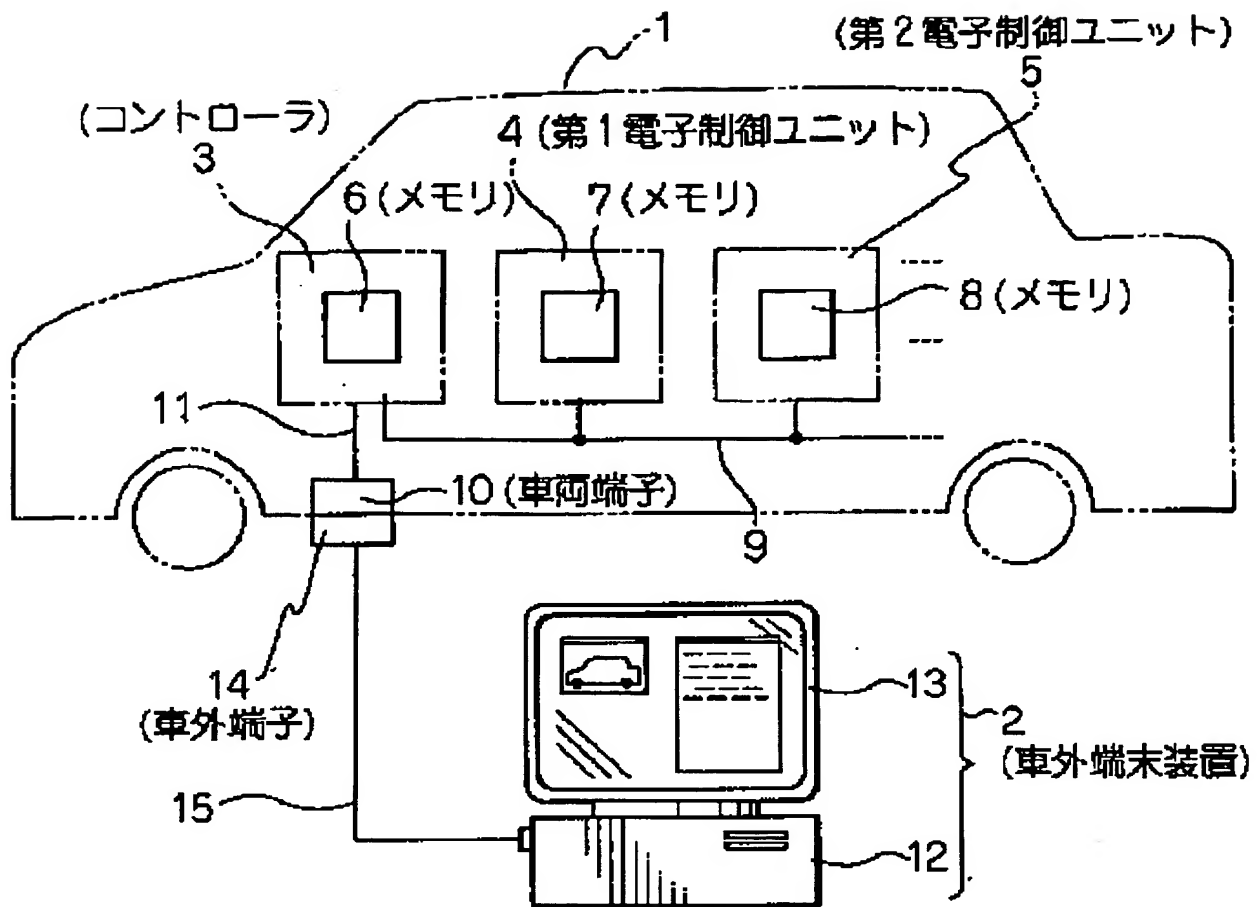
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          ┌──────────┐
          │   開始    │
          └────┬─────┘
               │
     ┌─────────────────────┐
     │ ・車外端子接続        │ ～S1
     └─────────┬───────────┘
               │
     ┌─────────────────────┐
     │ ・端末からパスワード入力│ ～S2
     │  →コントローラへ送信   │
     └─────────┬───────────┘
               │
               ◇ パスワードOK?  ～S3
              / \    ノー
         イエス│    └──────────────┐
               │                    │
     ┌─────────────────────┐  ┌─────────────────────┐
     │ ・コントローラは端末との│  │ ・コントローラは端末と │
     │  通信を開く →日時記録 │  │  通信しない →無視する │
     │       ～S4            │  │       ～S5            │
     └─────────┬───────────┘  └─────────┬───────────┘
               │                          │
     ┌─────────────────────┐            │
     │ ・端末からコマンド入力 │ ～S6       │
     │  →コマンド送信        │            │
     └─────────┬───────────┘            │
               │                          │
     ┌─────────────────────┐            │
     │ ・コントローラはコマンド│ ～S7       │
     │  実行  →実行結果返信  │            │
     └─────────┬───────────┘            │
               │                          │
     ┌─────────────────────┐            │
     │  端末で結果表示       │ ～S8       │
     │  (データ)            │            │
     └─────────┬───────────┘            │
               │                          │
               ◇ 終了?  ～S9              │
         ノー / \                         │
               │ イエス                    │
     ┌─────────────────────┐            │
     │ ・端末から終了信号送信 │ ～S10      │
     └─────────┬───────────┘            │
               │                          │
     ┌─────────────────────┐            │
     │ ・コントローラは終了日時記録│～S11  │
     └─────────┬───────────┘            │
               │                          │
               └───────────┬─────────────┘
                           │
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[Translation done.]

(51)Int.Cl.⁶	識別記号	庁内整理番号	FI	技術表示箇所
B60R 16/02		R 8012－3D		

審査請求 未請求 請求項の数2 FD （全 7 頁）

(54)【発明の名称】 部品情報管理システム

(57)【要約】
【目的】 部品を取外したりサービスマニュアル等を調べなくとも部品の材質や部品番号等を確認可能とする。
【構成】 車両情報コントローラ3が、車両固有情報，修理履歴情報が記憶されるメモリ6と、メモリ6〜8から車両固有情報，修理履歴情報を読出すと共に，メモリ6へ新規修理履歴情報を書込む機能を有するシステムコントロール部16とを備え、第1，第2電子制御ユニット4，5が、車両固有情報，修理履歴情報が記憶されるメモリ7，8を備え、車外端末装置2が、車両情報コントローラ3に対しメモリ6〜8からの車両固有情報，修理履歴情報の読出し，メモリ6〜8への新規修理履歴情報の書込みを指令すると共に，メモリ6〜8から読出された車両固有情報，修理履歴情報を表示部13に表示する機能を備える。

【特許請求の範囲】

【請求項1】　エンジン等を制御する複数の制御ユニットを有する車両等の輸送手段に着脱可能に接続される外部端末装置を備えた部品情報管理システムであって、

前記各制御ユニットが、

前記輸送手段に搭載された各種部品の材質・部品番号等を示す固有情報を予め記憶しておく未利用記憶領域を有する記憶手段をそれぞれ備え、

前記各制御ユニットのうち少なくとも一つの制御ユニットが、
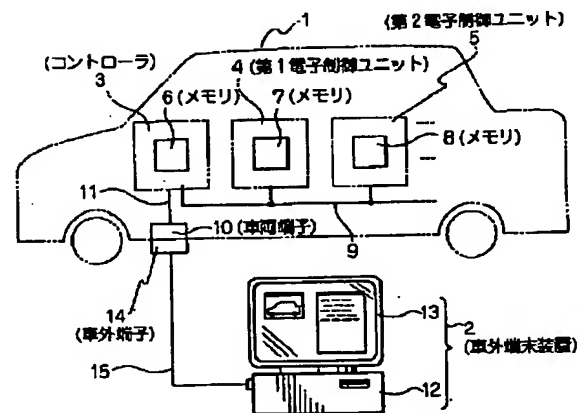
前記外部端末装置からの情報検索指令の入力に基づき前記各記憶手段から該当する固有情報を検索する情報検索機能を有する制御手段を備え、

前記外部端末装置が、

前記制御手段に対し該当する固有情報の検索を指令する情報検索指令機能と、前記制御手段により検索された固有情報を出力する情報出力機能とを具備したことを特徴とする部品情報管理システム。

【請求項2】　エンジン等を制御する複数の制御ユニットを有する車両等の輸送手段へ着脱可能に接続される外部端末装置を備えた部品情報管理システムであって、

前記各制御ユニットが、

前記輸送手段に搭載された各種部品の材質・部品番号等を示す固有情報を予め記憶しておく未利用記憶領域、及び前記各種部品の修理・交換の有無等を示す修理履歴情報を適宜記憶する未利用記憶領域を有する記憶手段をそれぞれ備え、

前記各制御ユニットのうち少なくとも一つの制御ユニットが、

前記外部端末装置からの情報検索指令の入力に基づき前記各記憶手段から該当する固有情報，修理履歴情報を検索する情報検索機能、及び前記外部端末装置からの情報書込指令の入力に基づき前記各記憶手段から未利用記憶領域を検索して新規修理履歴情報を書込む情報書込機能を有する制御手段を備え、

前記外部端末装置が、

前記制御手段に対し該当する固有情報，修理履歴情報の検索を指令する情報検索指令機能と、前記制御手段に対し該当する未利用記憶領域への新規修理履歴情報の書込みを指令する情報書込指令機能と、前記制御手段により検索された固有情報，修理履歴情報を出力する情報出力機能とを具備したことを特徴とする部品情報管理システム。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、部品情報管理システムに係り、特に、車両・自動二輪車・船外機等の組立時・整備点検時・解体時等に搭載部品の材質や部品番号等を容易に確認可能とする場合に好適な部品情報管理システムに関する。

【0002】

【従来の技術】従来、例えば車両に搭載されるバンパ等の樹脂製部品には、その材質を示す記号化された材質マークが直接刻印されている。また、車両組立工場等では、車両の仕様（例えば車台番号，車両に搭載する電子制御ユニットの種類，車両に搭載する各種部品の部品番号等）をプリントアウトした車両仕様専用紙を使用して、車両の仕様を識別することにより組立作業を行っている。

【0003】

【発明が解決しようとする課題】しかしながら、例えばバンパ等の車両搭載部品に材質マークを直接刻印する方法では、例えばサービス工場等で部品の材質を確認する際に当該部品を車体から取外し再度取付ける必要があるため、部品の脱着が面倒であるという問題があった。また、材質マークの刻印箇所も部品毎に決まっているわけでは無いため、部品に刻印された材質マークを探す手間がかかる問題もあった。他方、車両組立工場等で車両に搭載する部品等の仕様を車両仕様専用紙にプリントアウトする方法では、この種の車両仕様専用紙は車両の組立が終了した時点で廃棄処分されるため、車両出荷後にサービス工場や解体工場等で車両の整備点検・解体等を行う際にはサービスマニュアル等の別の資料が必要となる問題があった。

【0004】

【発明の目的】本発明は、上記従来例の有する不都合を改善し、特に、部品を取外したりサービスマニュアル等を調べなくとも部品の材質や部品番号等を確認可能とした部品情報管理システムの提供を目的とする。

【0005】

【課題を解決するための手段】本発明は、エンジン等を制御する複数の制御ユニットを有する車両等の輸送手段に着脱可能に接続される外部端末装置を備えた部品情報管理システムであって、前記各制御ユニットが、前記輸送手段に搭載された各種部品の材質・部品番号等を示す固有情報を予め記憶しておく未利用記憶領域を有する記憶手段をそれぞれ備え、前記各制御ユニットのうち少なくとも一つの制御ユニットが、前記外部端末装置からの情報検索指令の入力に基づき前記各記憶手段から該当する固有情報を検索する情報検索機能を有する制御手段を備え、前記外部端末装置が、前記制御手段に対し該当する固有情報の検索を指令する情報検索指令機能と、前記制御手段により検索された固有情報を出力する情報出力機能とを具備する構成としている。これにより、前述した目的を達成しようとするものである。

【0006】

【作用】本発明によれば、外部端末装置から車両等の輸送手段に装備されている制御ユニットの制御手段に対し、各記憶手段から該当する固有情報の検索を指令すると、制御ユニットの制御手段は、情報検索指令に基づき

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該当する記憶手段から固有情報を検索する。これにより、外部端末装置は、制御手段により検索された固有情報を出力する。従って、従来のように車両等の輸送手段から部品を取外して刻印された材質マークを確認したりサービスマニュアルを調べたりしなくとも，固有情報すなわち車両等の輸送手段に搭載された部品の材質や部品番号等を即座に確認することができるため、例えばサービス工場等における整備点検時の作業性を向上させることが可能となる。

【0007】
【実施例】以下、本発明の部品情報管理システムを車両に適用してなる実施例を図面に基づいて説明する。

【0008】図1は本実施例における車両要部及び車外端末装置の構成を示す図であり、車両1に搭載された車両情報コントローラ・電子制御ユニットの各メモリの未利用記憶領域に記憶されている車両固有情報（例えば出荷日時，車台番号，電子制御ユニットの制御対象部品の材質・部品番号，他の車両搭載部品の材質・部品番号等）や修理履歴情報（修理／交換した部品の材質・部品番号等）を車外端末装置2で読出すことにより、車両搭載部品の状態の識別判定や車両製造工場出荷後の修理履歴判定等を行うようになっている。

【0009】また、本実施例では、車両1の車両情報コントローラ・電子制御ユニットの各メモリにサービス工場等における整備点検に伴う修理履歴情報（修理／交換した部品の材質・部品番号等）を車外端末装置2で書込むことにより、車両1における次回の整備点検等に利用することができるようになっている。

【0010】車両要部及び車外端末装置の構成を詳述すると、車両1の内部の所定箇所には、車両情報コントローラ3，例えばエンジン制御用の第1電子制御ユニット4，例えば自動変速機制御用の第2電子制御ユニット5・・・等が装備されている。車両情報コントローラ3は、第1，第2電子制御ユニット4，5・・・を統括制御するシステムコントロール部16（図2参照），メモリ6等を備え、第1電子制御ユニット4は、例えばエンジン等を制御する制御部（図示略），メモリ7等を備え、第2電子制御ユニット5は、例えば自動変速機等を制御する制御部（図示略），メモリ8等を備えている。

【0011】本実施例では、車両情報コントローラ3，第1電子制御ユニット4，第2電子制御ユニット5に予め備えてある各メモリ6，7，8の未利用記憶領域を利用して車両固有情報，修理履歴情報を記憶するようになっており、別個に専用のメモリを増設することは不要となっている。

【0012】車両情報コントローラ3のメモリ6の未利用記憶領域（記憶領域6B）には、車両固有情報（例えば出荷日時，車台番号，第1，第2電子制御ユニット4，5・・・の制御対象部品以外の車両搭載部品の材質・部品番号等）が車両製造工場の組立時或いは出荷時に

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予め記憶されると共に，修理履歴情報（修理／交換した部品の材質・部品番号等）が車両製造工場出荷後にサービス工場等で車外端末装置2を用いて記憶されるようになっている。

【0013】また、第1電子制御ユニット4のメモリ7，第2電子制御ユニット5のメモリ8の未利用記憶領域には、車両固有情報（当該電子制御ユニットの制御対象部品の材質・部品番号等）が車両製造工場の組立時或いは出荷時に予め各々記憶されると共に，修理履歴情報（修理／交換した部品の材質・部品番号等）が車両製造工場出荷後にサービス工場等で車外端末装置2を用いて各々記憶されるようになっている。

【0014】車両1の内部に装備されている車両情報コントローラ3と第1電子制御ユニット4，第2電子制御ユニット5・・・とは、車内ケーブル9を介して電気的に接続されており、更に、車両情報コントローラ3には、車両1の所定箇所に配設された車両端子10が車内ケーブル11を介して電気的に接続されている。

【0015】他方、サービス工場（或いは解体工場）等に設置される車外端末装置2は、制御部及びキーボード等を有する装置本体12と表示部13とを備えて構成されており、装置本体12には、車外端子14が車外ケーブル15を介して電気的に接続されている。車外端末装置2により車両1の車両情報コントローラ3，第1電子制御ユニット4，第2電子制御ユニット5・・・の各メモリ6～8に記憶されている車両固有情報や修理履歴情報を読出す場合や各メモリ6～8へ修理履歴情報を書込む場合は、車外端子14と車両端子10とを接続するようになっている。

【0016】次に、車両情報コントローラ3の内部構成を図2に基づき説明すると、車両情報コントローラ3は、システムコントロール部16と，記憶領域6A，記憶領域6Bを有するメモリ6と，通信制御部17（通信機能付きIC）と，車外送信部18と，車外受信部19と，車内送信部20と，車内受信部21と，タイマ22とを備える構成となっている。

【0017】車両情報コントローラ3のメインコントロール部16は、車内ケーブル9，車内送信部20，車内受信部21，通信制御部17を介して第1電子制御ユニット4，第2電子制御ユニット5・・・と情報の通信を行い、車外ケーブル15，車外端子14，車両端子10，車内ケーブル11，車外送信部18，車外受信部19，通信制御部17を介して車外端末装置2と情報の通信を行うようになっている。メモリ6は、システムプログラムを格納した領域6Aと，車両搭載部品の材質・部品番号・車台番号・出荷日時等の情報を記憶した領域6Bとに区分されている。タイマ22は、日時を測定するようになっている。

【0018】車両情報コントローラ3のシステムコントロール部16は、車外端末装置2から車外ケーブル1

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5，車外端子１４，車両端子１０，車内ケーブル１１，車外受信部１９，通信制御部１７を介して車両固有情報または修理履歴情報の読出し／込みを依頼する信号が送信されてくると、依頼内容データとタイマ２２で測定した口時データとをメモリ６の領域６Ｂへ記憶するようになっている。

【００１９】また、車両情報コントローラ３のシステムコントロール部１６は、車外端末装置２の依頼内容に応じて、車両情報コントローラ３のメモリ６，第２電子制御ユニット４のメモリ７，第２電子制御ユニット５のメモリ８に記憶されている車両固有情報または修理履歴情報を，通信制御部１７，車外送信部１８，車内ケーブル１１，車両端子１０，車外端子１４，車外ケーブル１５を介して車外端末装置２へ送信するようになっている。

【００２０】次に、上記の如く構成した本実施例の作用を図３に基づき説明する。

【００２１】例えばサービス工場の作業者が車両１の整備点検等を行うべく、当該サービス工場に設置してある車外端末装置２の車外端子１４と車両１の車両端子１０とを接続すると（ステップＳ１）、車両１の車両情報コントローラ３と車外端末装置２との間で情報の通信が可能状態となる。

【００２２】次に、サービス工場の作業者が、車外端末装置２の装置本体１２のキーボードから予め設定してあるパスワードを入力すると、パスワードに対応した信号が車外ケーブル１５，車外端子１４，車両端子１０，車内ケーブル１１，及び車両情報コントローラ３の車外受信部１９，通信制御部１７を介してシステムコントロール部１６へ送信される（ステップＳ２）。

【００２３】車両情報コントローラ３のシステムコントロール部１６は、送信されてきたパスワードが正規なものか否かを判定し（ステップＳ３）、パスワードが正規である場合は車外端末装置２との通信を開始すると共に，タイマ２２により測定した日時をメモリ６の領域６Ｂに記憶する一方（ステップＳ４）、パスワードが正規でない場合は車外端末装置２との通信は行わない（ステップＳ５）。

【００２４】次に、サービス工場の作業者が、車外端末装置２の装置本体１２のキーボードから車両情報コントローラ３へ送信するコマンドを入力すると、コマンドが車外ケーブル１５，車外端子１４，車両端子１０，車内ケーブル１１，及び車両情報コントローラ３の車外受信部１９，通信制御部１７を介してシステムコントロール部１６へ送信される（ステップＳ６）。

【００２５】車両情報コントローラ３のシステムコントロール部１６は、車外端末装置２からコマンドを受信すると、当該コマンドに基づき車両情報コントローラ３のメモリ６〜８のうち該当するメモリからの車両固有情報（例えば出荷日時，車台番号，他の車両搭載部品の材質・部品番号等）の読出しを行い、或いは該当するメモリ

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に対する修理履歴情報（修理／交換した部品の材質・部品番号等）の読出し／書込みを行う。

【００２６】車両情報コントローラ３のシステムコントロール部１６は、上記コマンドに基づく読出し／書込み等の実行が終了すると、実行結果に基づく信号を，通信制御部１７，車外送信部１８，車内ケーブル１１，車両端子１０，車外端子１４，車外ケーブル１５を介して車外端末装置２へ送信する（ステップＳ７）。

【００２７】車外端末装置２は、車両１の車両情報コントローラ３から受信した車両固有情報に基づき車両１が正常な部品で構成されているか否か等の識別判定や，受信した修理履歴情報に基づき工場出荷後における車両１の修理履歴判定等を行うと共に、判定結果を表示部１３へ表示する（ステップＳ８）。

【００２８】次に、車外端末装置２は、車両１の車両情報コントローラ３による車外端末装置２への情報送信が終了したか否かを判定し（ステップＳ９）、終了していない場合は上記ステップＳ６以降の処理を繰返す一方、終了した場合は車外ケーブル１５，車外端子１４，車両端子１０，車内ケーブル１１，及び車両情報コントローラ３の車外受信部１９，通信制御部１７を介してシステムコントロール部１６へ終了信号を送信する（ステップＳ１０）。

【００２９】車両１の車両情報コントローラ３のシステムコントロール部１６は、車外端末装置２から終了信号を受信すると、タイマ２２により測定した終了日時をメモリ６の領域６Ｂへ記憶する（ステップＳ１１）。以上が、本実施例における車両１の車両情報コントローラ３及び車外端末装置２の制御動作の流れである。

【００３０】上述したように、本実施例によれば、車両１の車両情報コントローラ３，第１，第２電子制御ユニット４，５・・・に予め備えてある各メモリ６，８，９・・・の未利用記憶領域を利用して工場出荷時の車両固有情報（例えば出荷日時，車台番号，電子制御ユニットの制御対象部品の材質・部品番号，他の車両搭載部品の材質・部品番号等）を予め記憶しておくと共に、整備点検時の修理履歴情報（修理／交換した部品の材質・部品番号等）を適宜記憶するため、車両１の車両端子１０とサービス工場等に設置してある車外端末装置２の車外端子１４とを接続し，パスワードを入力するだけで、車両１の車両固有情報，修理履歴情報を即座に確認することができると共に、車両１が正常な部品で構成されているか否か等の識別判定や修理履歴判定等を行うこともできる。

【００３１】従って、従来のように車両から部品を取外して刻印された材質マークを確認したりサービスマニュアルを調べたりしなくとも，車両の車台番号，車両搭載部品の材質や部品番号，車両搭載の第１，第２電子制御ユニット４，５・・・が仕様通りであるか否か等を即座に確認することができるため、サービス工場等における

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整備点検時の作業性を向上させることが可能となる。また、車両の工場出荷後の整備点検に伴う修理履歴を記憶することもできるため、車両の整備点検を的確に行うことが可能となる。更に、車両固有情報や修理履歴情報は、メモリ6～8の未利用記憶領域を利用して記憶するため、これら各情報を記憶する専用メモリを別個に設ける必要が無く、既存のメモリを有効活用することができるという利点がある。

【0032】この場合、上記実施例では、車両情報コントローラ3と第1，第2電子制御ユニット4，5・・・とを接続する車内ケーブル9，車両情報コントローラ3と車両端子10とを接続する車内ケーブル11とを別個に配線する構成としたが、これに限定されず、例えば図4に示す如く、車内ケーブル9，10を1本の車内ケーブル23として一括することも可能である。この場合は、車外端末装置2に対して車両情報コントローラ3と第1，第2電子制御ユニット4，5・・・とが対等となるため、車外端末装置2からは車両情報コントローラ3，第1，第2電子制御ユニット4，5・・・の何れとも通信可能となり、更に車内ケーブルの配線を簡略化することもできる。

【0033】また、上記実施例では、本発明の部品情報管理システムを車両に適用した場合を例に上げたが、これに限定されず、例えば自動二輪車や船外機等に適用することも可能である。また、上記実施例では、車外端末装置2をサービス工場に設置した場合を例に上げたが、これに限定されず、例えば解体工場等の任意の場所に設置することも可能である。

【0034】

【発明の効果】以上説明したように、本発明の部品情報管理システムによれば、各制御ユニットが固有情報を予め記憶しておく未利用記憶領域を有する記憶手段をそれぞれ備え，各制御ユニットのうち少なくとも一つの制御ユニットが固有情報を検索する情報検索機能を有する制御手段を備え，外部端末装置が固有情報の検索を指令する情報検索指令機能及び検索された固有情報を出力する情報出力機能を備えているため、従来のように車両等の輸送手段から部品を取外して刻印された材質マークを確認したりサービスマニュアルを調べたりしなくとも，固有情報すなわち車両等の輸送手段に搭載された部品の材質や部品番号等を即座に確認することが可能となり、従って、例えばサービス工場等における車両等の輸送手段の整備点検時の作業性を向上させることが可能となり、

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更に、固有情報は各記憶手段の未利用記憶領域を利用して記憶しているため、これら各情報を記憶する専用の記憶手段を別個に設ける必要が無く、従って既存の記憶手段を有効活用することができる、という優れた効果を奏することができる。

【0035】また、本発明の部品情報管理システムにおいて、各制御ユニットが固有情報を予め記憶しておく未利用記憶領域及び修理履歴情報を適宜記憶する未利用記憶領域を有する記憶手段をそれぞれ備え，各制御ユニットのうち少なくとも一つの制御ユニットが固有情報，修理履歴情報を検索する情報検索機能及び未利用記憶領域を検索して新規修理履歴情報を書込む情報書込機能を有する制御手段を備え、外部端末装置が固有情報，修理履歴情報の検索を指令する情報検索指令機能，未利用記憶領域への新規修理履歴情報の書込みを指令する情報書込指令機能，及び検索された固有情報，修理履歴情報を出力する情報出力機能を備えた場合には、車両等の輸送手段の工場出荷後における整備点検に伴う修理履歴の読出しや書込みが可能となるため、車両等の輸送手段の整備点検を円滑に行うことが可能となる、という効果がある。

【図面の簡単な説明】

【図1】本発明を適用した本実施例における車両要部及び車外端末装置の構成を示すブロック図である。
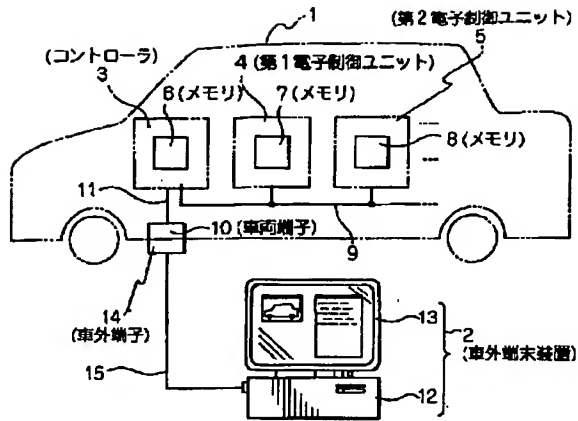
【図2】本実施例における車両情報コントローラの構成を示すブロック図である。

【図3】本実施例における車両固有情報・修理履歴情報の読出し／書込み処理等を示す流れ図である。

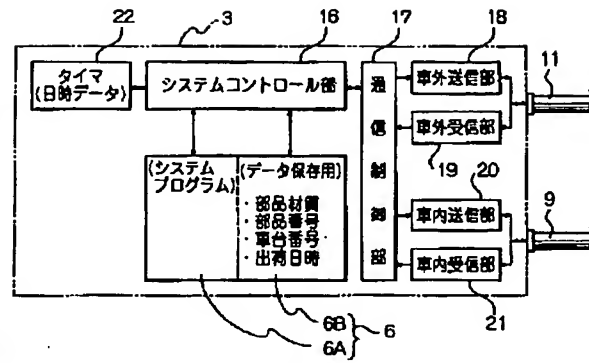【図4】変形例による車両要部の構成を示すブロック図である。

【符号の説明】

1 車両

2 外部端末装置としての車外端末装置

3 制御ユニットとしての車両情報コントローラ

4 制御ユニットとしての第1電子制御ユニット

5 制御ユニットとしての第2電子制御ユニット

6，7，8 記憶手段としてのメモリ

9，11 車内ケーブル

10 車両端子

13 表示部

14 車外端子

15 車外ケーブル

16 制御手段としてのシステムコントロール部

【図1】

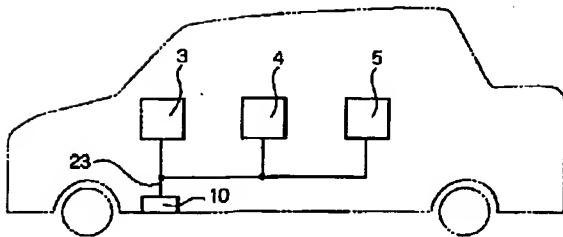【図2】

【図4】

【図3】

```
                    ┌─────────┐
                    │   開始   │
                    └────┬────┘
                         │
          ┌──────────────────────────┐
          │ ・車外端子接続              │ ～S1
          └──────────────┬───────────┘
                         │
          ┌──────────────────────────┐
          │ ・端末からパスワード入力      │ ～S2
          │  →コントローラへ送信        │
          └──────────────┬───────────┘
                         │         S3
                    ╱────┴────╲
                   ╱            ╲      ノー
                  ╱ パスワードOK? ╲──────────────┐
                   ╲            ╱               │
                    ╲────┬────╱                │
                      イエス  S4                S5
          ┌──────────────────────┐   ┌──────────────────────┐
          │ ・コントローラは端末との │   │ ・コントローラは端末と  │
          │  通信を開く →日時記録 │   │  通信しない →無視する │
          └──────────┬───────────┘   └──────────────────────┘
                     │◄────────────┐
          ┌──────────────────────┐ │
          │ ・端末からコマンド入力  │ │ ～S6
          │  →コマンド送信        │ │
          └──────────┬───────────┘ │
          ┌──────────────────────┐ │
          │ ・コントローラはコマンド │ │ ～S7
          │  実行 →実行結果返信  │ │
          └──────────┬───────────┘ │
          ┌──────────────────────┐ │
          │  端末で結果表示       │ │ ～S8
          │  （データ）          │ │
          └──────────┬───────────┘ │
                     │     S9       │
            ノー  ╱────┴────╲       │
          ┌─────╱            ╲      │
          │    ╱    終了?     ╲─────┘
          └───▶╲            ╱
                ╲────┬────╱
                  イエス
          ┌──────────────────────┐
          │ ・端末から終了信号送信  │ ～S10
          └──────────┬───────────┘
          ┌──────────────────────┐
          │ ・コントローラは終了日時記録 │ ～S11
          └──────────┬───────────┘
                     │◄──────────────────┘
                ┌────┴────┐
                │   終了   │
                └─────────┘
```